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SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/761,683	Applicant(s) HARA, MANABU	
	Examiner Albert H. Cutler	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to application 10/761,683 filed on January 21, 2004. Claims 1-18 are pending in the application and have been examined by the examiner.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

3. Claim 1, 6, 7, 12, 13 and 18 are objected to because of the following informalities: Lack of clarity and precision.

4. Claim 1 recites, "compensating said **zero** defect color information of said defect pixel using said average value". The Examiner believes that the word "zero" should be removed to improve clarity(see corresponding figure 5, step S4). Appropriate correction is required.

5. Claim 6 recites, "said video signal is **the one** outputted from a solid state imaging device". No signal outputted from a solid state imaging device is previously recited in claim 6, or the parent claim 1. Please remove "the" from "the one" in order to improve clarity. Appropriate action is required.

6. Claim 7 recites, "compensating said **zero** defect color information of said defect pixel using said average value". The Examiner believes that the word "zero" should be

removed to improve clarity(see corresponding figure 5, step S4). Appropriate correction is required.

7. Claim 12 recites, "said video signal is **the one** outputted from a solid state imaging device". No signal outputted from a solid state imaging device is previously recited in claim 12, or the parent claim 7. Please remove "the" from "the one" in order to improve clarity. Appropriate action is required.

8. Claim 13 recites, "compensating said **zero** defect color information of said defect pixel using said average value". The Examiner believes that the word "zero" should be removed to improve clarity(see corresponding figure 5, step S4). Appropriate correction is required.

9. Claim 18 recites, "said video signal is **the one** outputted from a solid state imaging device". No signal outputted from a solid state imaging device is previously recited in claim 18, or the parent claim 13. Please remove "the" from "the one" in order to improve clarity. Appropriate action is required.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 1, 2, 6, 7, 8, 12, 13, 14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura(US Patent 7,102,673) in view of Smith(US Patent 6,970,194).

Consider claim 1, Kimura teaches:

A pixel compensating circuit for compensating defect pixels(column 5, line 21 through column 9, line 48) comprising:

a color information holding unit for holding plural kinds of color information of a defect pixel and pixels adjacent said defect pixel(Multiple image signals are obtained(i.e. they are held in a holding unit), each signal corresponding to a different calibration sheet, which calibration sheets can correspond to different colors, and differences between the signals are examined to find defective pixels(column 5, line 24 through column 6, line 7). Since entire images are read out, corresponding to different color sheets, information representing plural kinds color information for defect pixels as well as non-defective pixels(i.e. adjacent pixels) is held.);

a difference calculating unit for calculating differences between zero defect color information among said color information of said defect pixel and said color information of said pixels adjacent said defect pixel corresponding to said zero defect color information(See figure 2, column 6, line 19 through column 7, line 14. Multiple calibration sheets can be used(column 5, line 54), and these sheets can be comprised of different colors. However, the difference between the output from every set of two calibration sheets is obtained(column 6, line 5). Therefore, during the readout of an image signal, zero defect color information is obtained at the same time as the defect color information(i.e. the zero defect color information is **among** the defect information produced by the defective pixel). Differences are obtained between successive image readouts using different color sheets. Therefore differences between zero defect color information, which is among said color information of said defect pixel, and color information of said pixels adjacent said defect pixel, pixels which correspond to zero defect color information, are obtained when comparing two separate images. Because all the pixels are compared, differences for the defect pixels, as well as differences for the adjacent pixels are obtained. The differences between the images are obtained, as shown in figure 2c, in order to find defective pixels.); and

a compensating unit for calculating average values of said differences for said reference pixel and said defect pixel(In Step 4, of figure 2, the average values of **all** the differences(i.e. the differences for reference pixels, defects pixels, and any other pixels) are obtained. See column 6, lines 16-22.), and for compensating said defect color information of said defect pixel using said average value(The average values are used

to determine defective pixels(Step 5, figure 2, column 6, lines 23-45). Any defective pixel is then compensated by replacing its value with the average value of the surrounding pixels(column 7, lines 34-37).).

However, Kimura does not explicitly teach that the pixel compensation is performed on a video signal, or of a reference pixel determining unit for determining a reference pixel having color information that is the most similar to said zero defect color information.

Smith is similar to Kimura in that Smith is concerned with correcting defective pixels output from an imaging device(column 1, lines 64-67). Smith is also similar in that color and monochrome images can be used(column 2, lines 1-3).

In addition to the teachings of Kimura, Smith teaches that the pixel compensation is performed on a video signal(column 1, lines 64-67), and of a reference pixel determining unit for determining a reference pixel having color information that is the most similar to said zero defect color information(See column 4, line 25 through column 5, line 9. A possible defective pixel p(c) is compared to all eight neighboring pixels. If the value of pixel p(c) is larger than the largest neighboring value, then p(c) is set to the largest value(i.e. the largest value pixel is most similar to p(c), and is thus set as the reference pixel). If p(c) is smaller than the smallest value, then p(c) is set to the smallest value(i.e. the smallest value pixel is most similar to p(c), and is thus set as the reference pixel).).

Therefore, it would have been obvious to a person having ordinary skill in that art at the time of the invention to include a reference pixel determining unit for determining

a reference pixel that is the most similar to said zero defect color information in a video signal as taught by Smith in the pixel compensating circuit taught by Kimura for the benefit of avoiding unwanted costs by easily determining a replacement pixel for a defective pixel, and allowing subsequent calibration, beneficial due to the transient nature of pixel defects(Smith, column 1, lines 50-60).

Consider claim 2, and as applied to claim 1 above, Kimura does not explicitly teach that said reference pixel determining unit determines said reference pixel so that the sum of the absolute values of said differences becomes a minimum.

However, Smith teaches that said reference pixel determining unit(see claim 1 rationale) determines said reference pixel so that the sum of the absolute values of said differences becomes a minimum(When the largest value pixel is set as the reference pixel, as explained in claim 1 above, the sum of the absolute values of the differences of the pixels of Kimura becomes a minimum, as the difference between the upper and lower values of the previously defective pixel are smaller due to the lowering of the upper value to the reference pixel value.).

Consider claim 6, and as applied to claim 1 above, Kimura teaches that the image signal is output from a solid state device(column 1, lines 9-14).

However, Kimura does not explicitly teach that the image signal is a video signal. Smith teaches that the image signal is a video signal("video data stream", column 1, line 67).

Consider claim 7, Kimura teaches:

A pixel compensating method for compensating a defect pixel of an image signal(column 5, line 21 through column 9, line 48), comprising the steps of:.

holding plural kinds of color information of defect pixel and pixels adjacent said defect pixel(Multiple image signals are obtained(i.e. they are held in a holding unit), each signal corresponding to a different calibration sheet, which calibration sheets can correspond to different colors, and differences between the signals are examined to find defective pixels(column 5, line 24 through column 6, line 7). Since entire images are read out, corresponding to different color sheets, information representing plural kinds color information for defect pixels as well as non-defective pixels(i.e. adjacent pixels) is held.);

calculating differences between zero defect color information among said color information of said defect pixel and said color information of said pixels adjacent said defect pixel corresponding to said zero defect color information(See figure 2, column 6, line 19 through column 7, line 14. Multiple calibration sheets can be used(column 5, line 54), and these sheets can be comprised of different colors. However, the difference between the output from every set of two calibration sheets is obtained(column 6, line 5). Therefore, during the readout of an image signal, zero defect color information is obtained at the same time as the defect color information(i.e. the zero defect color information is **among** the defect information produced by the defective pixel). Differences are obtained between successive image readouts using different color

sheets. Therefore differences between zero defect color information, which is among said color information of said defect pixel, and color information of said pixels adjacent said defect pixel, pixels which correspond to zero defect color information, are obtained when comparing two separate images. Because all the pixels are compared, differences for the defect pixels, as well as differences for the adjacent pixels are obtained. The differences between the images are obtained, as shown in figure 2c, in order to find defective pixels.);

calculating average values of said differences for said reference pixel and said defect pixel(In Step 4, of figure 2, the average values of **all** the differences(i.e. the differences for reference pixels, defects pixels, and any other pixels) are obtained. See column 6, lines 16-22.); and

compensating said zero defect color information of said defect pixel using said average value(The average values are used to determine defective pixels(Step 5, figure 2, column 6, lines 23-45). Any defective pixel is then compensated by replacing its value with the average value of the surrounding pixels(column 7, lines 34-37).).

However, Kimura does not explicitly teach that the image signal is a video signal, or determining a reference pixel having color information that is the most similar to said zero defect color information;

Smith is similar to Kimura in that Smith is concerned with correcting defective pixels output from an imaging device(column 1, lines 64-67). Smith is also similar in that color and monochrome images can be used(column 2, lines 1-3).

In addition to the teachings of Kimura, Smith teaches that the pixel compensation is performed on a video signal(column 1, lines 64-67), and of a reference pixel determining unit for determining a reference pixel having color information that is the most similar to said zero defect color information(See column 4, line 25 through column 5, line 9. A possible defective pixel p(c) is compared to all eight neighboring pixels. If the value of pixel p(c) is larger than the largest neighboring value, then p(c) is set to the largest value(i.e. the largest value pixel is most similar to p(c), and is thus set as the reference pixel). If p(c) is smaller than the smallest value, then p(c) is set to the smallest value(i.e. the smallest value pixel is most similar to p(c), and is thus set as the reference pixel).).

Therefore, it would have been obvious to a person having ordinary skill in that art at the time of the invention to include a reference pixel determining unit for determining a reference pixel that is the most similar to said zero defect color information in a video signal as taught by Smith in the pixel compensating circuit taught by Kimura for the benefit of avoiding unwanted costs by easily determining a replacement pixel for a defective pixel, and allowing subsequent calibration, beneficial due to the transient nature of pixel defects(Smith, column 1, lines 50-60).

Consider claim 8, and as applied to claim 7 above, Kimura does not explicitly teach that said reference pixel is determined so that the sum of the absolute values of said differences becomes a minimum.

However, Smith teaches that said reference pixel determining unit(see claim 1 rationale) determines said reference pixel so that the sum of the absolute values of said differences becomes a minimum(When the largest value pixel is set as the reference pixel, as explained in claim 1 above, the sum of the absolute values of the differences of the pixels of Kimura becomes a minimum, as the difference between the upper and lower values of the previously defective pixel are smaller due to the lowering of the upper value to the reference pixel value.).

Consider claim 12, and as applied to claim 7 above, Kimura teaches that the image signal is output from a solid state device(column 1, lines 9-14).

However, Kimura does not explicitly teach that the image signal is a video signal. Smith teaches that the image signal is a video signal("video data stream", column 1, line 67).

Consider claim 13, Kimura teaches:

An image taking apparatus(column 1, lines 6-14) including a pixel compensating circuit for compensating defect pixels included in an image signal(column 5, line 21 through column 9, line 48), wherein said pixel compensating circuit comprising:

a color information holding unit for holding plural kinds of color information of a defect pixel and pixels adjacent said defect pixel(Multiple image signals are obtained(i.e. they are held in a holding unit), each signal corresponding to a different calibration sheet, which calibration sheets can correspond to different colors, and

differences between the signals are examined to find defective pixels(column 5, line 24 through column 6, line 7). Since entire images are read out, corresponding to different color sheets, information representing plural kinds color information for defect pixels as well as non-defective pixels(i.e. adjacent pixels) is held.);

a difference calculating unit for calculating differences between zero defect color information among said color information of said defect pixel and said color information of said pixels adjacent said defect pixel corresponding to said zero defect color information(See figure 2, column 6, line 19 through column 7, line 14. Multiple calibration sheets can be used(column 5, line 54), and these sheets can be comprised of different colors. However, the difference between the output from every set of two calibration sheets is obtained(column 6, line 5). Therefore, during the readout of an image signal, zero defect color information is obtained at the same time as the defect color information(i.e. the zero defect color information is **among** the defect information produced by the defective pixel). Differences are obtained between successive image readouts using different color sheets. Therefore differences between zero defect color information, which is among said color information of said defect pixel, and color information of said pixels adjacent said defect pixel, pixels which correspond to zero defect color information, are obtained when comparing two separate images. Because all the pixels are compared, differences for the defect pixels, as well as differences for the adjacent pixels are obtained. The differences between the images are obtained, as shown in figure 2c, in order to find defective pixels.); and

a compensating unit for calculating average values of said differences for said reference pixel and said defect pixel(In Step 4, of figure 2, the average values of **all** the differences(i.e. the differences for reference pixels, defects pixels, and any other pixels) are obtained. See column 6, lines 16-22.), and for compensating said defect color information of said defect pixel using said average value(The average values are used to determine defective pixels(Step 5, figure 2, column 6, lines 23-45). Any defective pixel is then compensated by replacing its value with the average value of the surrounding pixels(column 7, lines 34-37).).

However, Kimura does not explicitly teach that the pixel compensation is performed on a video signal, or of a reference pixel determining unit for determining a reference pixel having color information that is the most similar to said zero defect color information.

Smith is similar to Kimura in that Smith is concerned with correcting defective pixels output from an imaging device(column 1, lines 64-67). Smith is also similar in that color and monochrome images can be used(column 2, lines 1-3).

In addition to the teachings of Kimura, Smith teaches that the pixel compensation is performed on a video signal(column 1, lines 64-67), and of a reference pixel determining unit for determining a reference pixel having color information that is the most similar to said zero defect color information(See column 4, line 25 through column 5, line 9. A possible defective pixel p(c) is compared to all eight neighboring pixels. If the value of pixel p(c) is larger than the largest neighboring value, then p(c) is set to the largest value(i.e. the largest value pixel is most similar to p(c), and is thus set as the

reference pixel). If p(c) is smaller than the smallest value, then p(c) is set to the smallest value(i.e. the smallest value pixel is most similar to p(c), and is thus set as the reference pixel).).

Therefore, it would have been obvious to a person having ordinary skill in that art at the time of the invention to include a reference pixel determining unit for determining a reference pixel that is the most similar to said zero defect color information in a video signal as taught by Smith in the pixel compensating circuit taught by Kimura for the benefit of avoiding unwanted costs by easily determining a replacement pixel for a defective pixel, and allowing subsequent calibration, beneficial due to the transient nature of pixel defects(Smith, column 1, lines 50-60).

Consider claim 14, and as applied to claim 13 above, Kimura does not explicitly teach that said reference pixel determining unit determines said reference pixel so that the sum of the absolute values of said differences becomes a minimum.

However, Smith teaches that said reference pixel determining unit(see claim 1 rationale) determines said reference pixel so that the sum of the absolute values of said differences becomes a minimum(When the largest value pixel is set as the reference pixel, as explained in claim 1 above, the sum of the absolute values of the differences of the pixels of Kimura becomes a minimum, as the difference between the upper and lower values of the previously defective pixel are smaller due to the lowering of the upper value to the reference pixel value.).

Consider claim 18, and as applied to claim 13 above, Kimura teaches that the image signal is output from a solid state device(column 1, lines 9-14).

However, Kimura does not explicitly teach that the image signal is a video signal. Smith teaches that the image signal is a video signal("video data stream", column 1, line 67).

13. Claims 3, 4, 5, 9, 10, 11, 15, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura in view of Smith as applied to claims 1, 7, and 13 above, and further in view of Anderson et al.(US Patent Application Publication 2004/0096125).

Consider claim 3, and as applied to claim 1 above, the combination of Kimura and Smith does not explicitly teach that when there exists a defect in the adjacent pixel, said adjacent pixel having defect is excluded.

Anderson et al. is similar to both Kimura and Smith in that Anderson et al. is concerned with replacing defective pixels in image sensing elements(paragraph 0002).

However, in addition to the teachings of Kimura and Smith, Anderson et al. teach that when there exists a defect in the adjacent pixel, said adjacent pixel having defect is excluded(See figure 5A, paragraphs 0043-0059, Anderson et al. teach of using a series of masks to exclude adjacent defective pixels.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to exclude adjacent defective pixels as taught by Anderson

et al., when correcting a defective pixel as taught by the combination of Kimura and Smith in order to prevent the loss of image information and maintain the desired aesthetic quality of the imagery(Anderson et al., paragraph 0005).

Consider claim 4, and as applied to claim 1 above, the combination of Kimura and Smith teaches of performing compensation for defective pixels(see claim 1 rationale). However, the combination does not explicitly teach that said compensation is carried out per one pixel when said defect pixels are 2 or more in a row.

Anderson et al. is similar to both Kimura and Smith in that Anderson et al. is concerned with replacing defective pixels in image sensing elements(paragraph 0002).

However, in addition to the teachings of Kimura and Smith, Anderson et al. teach that said compensation is carried out per one pixel when said defect pixels are 2 or more in a row(See figure 5A, paragraphs 0043-0059, Anderson et al. teach of using a series of masks to exclude adjacent defective pixels. In this way, correct compensation can be achieved on a single pixel, indicated by the letter X.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to perform compensation per one pixel when said defect pixels are 2 or more in a row as taught by Anderson et al., when correcting a defective pixel as taught by the combination of Kimura and Smith in order to prevent the loss of image information and maintain the desired aesthetic quality of the imagery(Anderson et al., paragraph 0005).

Consider claim 5, and as applied to claim 1 above, the combination of Kimura and Smith teaches of determining differences between pixel values(see claim 1 rationale). However, the combination does not explicitly teach of a weighting unit for applying a coefficient to said difference depending on a distance between said defect pixel and the focused adjacent pixel.

Anderson et al. is similar to both Kimura and Smith in that Anderson et al. is concerned with replacing defective pixels in image sensing elements(paragraph 0002).

However, in addition to the teachings of Kimura and Smith, Anderson et al. teach of a weighting unit for applying a coefficient to said difference depending on a distance between said defect pixel and the focused adjacent pixel(See paragraphs 0023-0042, figures 1-4g).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a weighting unit for applying a coefficient to said difference depending on a distance between said defect pixel and the focused adjacent pixel as taught by Anderson et al., when correcting a defective pixel as taught by the combination of Kimura and Smith in order to prevent the loss of image information and maintain the desired aesthetic quality of the imagery(Anderson et al., paragraph 0005).

Consider claim 9, and as applied to claim 7 above, the combination of Kimura and Smith does not explicitly teach that when there exists a defect in the adjacent pixel, said adjacent pixel having defect is excluded.

Anderson et al. is similar to both Kimura and Smith in that Anderson et al. is concerned with replacing defective pixels in image sensing elements(paragraph 0002).

However, in addition to the teachings of Kimura and Smith, Anderson et al. teach that when there exists a defect in the adjacent pixel, said adjacent pixel having defect is excluded(See figure 5A, paragraphs 0043-0059, Anderson et al. teach of using a series of masks to exclude adjacent defective pixels.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to exclude adjacent defective pixels as taught by Anderson et al., when correcting a defective pixel as taught by the combination of Kimura and Smith in order to prevent the loss of image information and maintain the desired aesthetic quality of the imagery(Anderson et al., paragraph 0005).

Consider claim 10, and as applied to claim 7 above, the combination of Kimura and Smith teaches of performing compensation for defective pixels(see claim 1 rationale). However, the combination does not explicitly teach that said compensation is carried out per one pixel when said defect pixels are 2 or more in a row.

Anderson et al. is similar to both Kimura and Smith in that Anderson et al. is concerned with replacing defective pixels in image sensing elements(paragraph 0002).

However, in addition to the teachings of Kimura and Smith, Anderson et al. teach that said compensation is carried out per one pixel when said defect pixels are 2 or more in a row(See figure 5A, paragraphs 0043-0059, Anderson et al. teach of using a

series of masks to exclude adjacent defective pixels. In this way, correct compensation can be achieved on a single pixel, indicated by the letter X.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to perform compensation per one pixel when said defect pixels are 2 or more in a row as taught by Anderson et al., when correcting a defective pixel as taught by the combination of Kimura and Smith in order to prevent the loss of image information and maintain the desired aesthetic quality of the imagery(Anderson et al., paragraph 0005).

Consider claim 11, and as applied to claim 7 above, the combination of Kimura and Smith teaches of determining differences between pixel values(see claim 1 rationale). However, the combination does not explicitly teach of applying a coefficient to said difference depending on a distance between said defect pixel and the focused adjacent pixel.

Anderson et al. is similar to both Kimura and Smith in that Anderson et al. is concerned with replacing defective pixels in image sensing elements(paragraph 0002).

However, in addition to the teachings of Kimura and Smith, Anderson et al. teach of applying a coefficient to said difference depending on a distance between said defect pixel and the focused adjacent pixel(See paragraphs 0023-0042, figures 1-4g).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to apply a coefficient to said difference depending on a distance between said defect pixel and the focused adjacent pixel as taught by

Anderson et al., when correcting a defective pixel as taught by the combination of Kimura and Smith in order to prevent the loss of image information and maintain the desired aesthetic quality of the imagery(Anderson et al., paragraph 0005).

Consider claim 15, and as applied to claim 13 above, the combination of Kimura and Smith does not explicitly teach that when there exists a defect in the adjacent pixel, said adjacent pixel having defect is excluded.

Anderson et al. is similar to both Kimura and Smith in that Anderson et al. is concerned with replacing defective pixels in image sensing elements(paragraph 0002).

However, in addition to the teachings of Kimura and Smith, Anderson et al. teach that when there exists a defect in the adjacent pixel, said adjacent pixel having defect is excluded(See figure 5A, paragraphs 0043-0059, Anderson et al. teach of using a series of masks to exclude adjacent defective pixels.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to exclude adjacent defective pixels as taught by Anderson et al., when correcting a defective pixel as taught by the combination of Kimura and Smith in order to prevent the loss of image information and maintain the desired aesthetic quality of the imagery(Anderson et al., paragraph 0005).

Consider claim 16, and as applied to claim 13 above, the combination of Kimura and Smith teaches of performing compensation for defective pixels(see claim 1

rationale). However, the combination does not explicitly teach that said compensation is carried out per one pixel when said defect pixels are 2 or more in a row.

Anderson et al. is similar to both Kimura and Smith in that Anderson et al. is concerned with replacing defective pixels in image sensing elements(paragraph 0002).

However, in addition to the teachings of Kimura and Smith, Anderson et al. teach that said compensation is carried out per one pixel when said defect pixels are 2 or more in a row(See figure 5A, paragraphs 0043-0059, Anderson et al. teach of using a series of masks to exclude adjacent defective pixels. In this way, correct compensation can be achieved on a single pixel, indicated by the letter X.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to perform compensation per one pixel when said defect pixels are 2 or more in a row as taught by Anderson et al., when correcting a defective pixel as taught by the combination of Kimura and Smith in order to prevent the loss of image information and maintain the desired aesthetic quality of the imagery(Anderson et al., paragraph 0005).

Consider claim 17, and as applied to claim 13 above, the combination of Kimura and Smith teaches of determining differences between pixel values(see claim 1 rationale). However, the combination does not explicitly teach of a weighting unit for applying a coefficient to said difference depending on a distance between said defect pixel and the focused adjacent pixel.

Anderson et al. is similar to both Kimura and Smith in that Anderson et al. is concerned with replacing defective pixels in image sensing elements(paragraph 0002).

However, in addition to the teachings of Kimura and Smith, Anderson et al. teach of a weighting unit for applying a coefficient to said difference depending on a distance between said defect pixel and the focused adjacent pixel(See paragraphs 0023-0042, figures 1-4g).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a weighting unit for applying a coefficient to said difference depending on a distance between said defect pixel and the focused adjacent pixel as taught by Anderson et al., when correcting a defective pixel as taught by the combination of Kimura and Smith in order to prevent the loss of image information and maintain the desired aesthetic quality of the imagery(Anderson et al., paragraph 0005).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert H. Cutler whose telephone number is (571)-270-1460. The examiner can normally be reached on Mon-Fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571)-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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